

said composition exhibiting a viscosity of no greater than about 65,000 centipoise at 300°F.

Remarks

Pages 1, 2, 3, 5-9, 13 and 14 of the Specification have been amended. Claims 1, 3, 22, 24-27 and 33-38 have been amended. New claims 39 and 40 have been added. Clean versions and marked-up versions of the amended Specification pages and claims are attached hereto at Tabs 1-5. The above amendments correct inadvertent typographical and clerical errors and have not made for reasons related to patentability. No new matter has been added by the amendments. Entry of this Preliminary Amendment is respectfully requested.

The amendments to Applicants' Specification in which the word "average" has been replaced with "median" were necessitated due to information Applicants received subsequent to the filing of the application. The AQUA KEEP Super Absorbent Polymer product literature listed under "other documents" on the Form 1449 that was submitted on January 15, 2002, lists a "mean" (i.e., average) particle size for the various superabsorbent particles identified on page 7 thereof. However, Applicants recently received information from the manufacturer indicating that the particle size reported in the brochure for AQUAKEEP 10SH-NF actually is a median particle size, as opposed to an average or mean particle size. The manufacturer's analysis is attached at Tab 6. Since the particle size is an inherent property of the AQUAKEEP 10SH-NF product disclosed in the Specification at page 7, line 30 and in the Examples at pages 13-14, Applicants submit that the deletion of the word "average" and the insertion of the word "median" does not constitute new matter.

The amendments to Applicants' Specification and claims 1, 22, 24-27, 33 and 38 whereby the phrase "or A-B-A" has been added, were necessitated due to inadvertent clerical errors in drafting the application. Support for the amendments to the Specification can be found in general throughout Applicants' Specification and in particular, for example, at page 1, lines 26-29, page 5, lines 25-28, and in the Examples, e.g., Examples 1-4 and 6-8. No new matter has been added by these amendments.

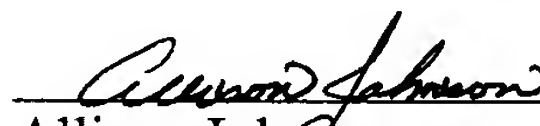
Support for new claims 39 and 40 can be found in general throughout Applicants' Specification and in particular, for example, as follows: claim 39, page 5, lines 11-14 and Example 7; claim 40, page 6, line 3 - page 7, line 11 and Example 5.

Regarding the amendment to page 13, line 13, wherein the word "polyethylene" has been deleted and the word "polybutylene" has been inserted, the amendment serves to correct an inadvertent clerical error. See Polybutylene Base Polymers product literature (Shell Oil Company, 1996), which is attached at Tab 7. Support for the amendment to page 7, line 3 can be found at page 13, line 13.

Please charge any additional fees that may be required or credit any overpayment made to Deposit Account No. 06-2241.

Respectfully submitted,

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MARKED-UP VERSION OF THE AMENDED PARAGRAPHS OF THE SPECIFICATION

The following is a marked-up version of the amended paragraph at page 1, lines 16-29.

In one aspect, the invention features a thermoplastic composition that includes from about 1 % by weight to 25 % by weight block copolymer having the formula (A-B)_x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one, from about 45 % by weight to about 75 % by weight superabsorbent polymer particles that [includes] include polyacrylate and having [an average] a median particle diameter of from 20 μm to 30 μm, and from about 15 % by weight to about 40 % by weight plasticizing oil. In one embodiment, the thermoplastic composition further includes surfactant. In another embodiment, the thermoplastic composition further includes from about 1 % by weight to about 5 % by weight surfactant. In some embodiments, the thermoplastic composition includes from 60 % by weight to about 75 % by weight the superabsorbent polymer. In one embodiment, the block copolymer is selected from the group consisting of styrene-isoprene-styrene, styrene-ethylene-butylene-styrene, styrene-ethylene-propylene-styrene, styrene-butadiene-styrene and combinations thereof.

The following is a marked-up version of the amended paragraph at page 5, lines 15-28.

Suitable block copolymers include linear and radial copolymer structures having the formula (A-B)_x or A-B-A, where block A is a polyvinylarene block, block [Block] B is a poly(monoalkenyl) block, and x is an integer of at least one. Suitable block A polyvinylarenes include, e.g., polystyrene, polyalpha-methylstyrene, polyvinyltoluene and combinations thereof. Suitable B blocks include, e.g., conjugated diene elastomers including, e.g., polybutadiene and polyisoprene, hydrogenated elastomers, ethylene/butylene (hydrogenated butadiene) and ethylene/propylene (hydrogenated isoprene), and combinations and mixtures thereof. Useful commercially available block copolymers are available under the Kraton D and Kraton G series of trade designations from Shell Chemical Company (Houston, TX) including, e.g., Kraton G-1651, the Europrene Sol T series of trade designations from EniChem Elastomers (Houston, TX), the Vector series of trade designations from Exxon (Dexco) (Houston, TX), Soprene

**MARKED-UP VERSION OF THE AMENDED PARAGRAPHS OF THE
SPECIFICATION (CONTINUED)**

series of trade designations from Enichem Elastomers and Stereon series of trade designations from Firestone Tire & Rubber Co. (Akron, Ohio).

The following is a marked-up version of the amended paragraph at page 6, lines 13-28.

Metallocene polyolefins are homogeneous linear and substantially linear ethylene polymers prepared using single-site or metallocene catalysts. Substantially linear ethylene polymers are commercially available from Dow Chemical Company and include polyolefin plastomers available under the AFFINITY trade designation, homogeneous linear ethylene polymers are available from Exxon Chemical Company under the trade designation EXACT. Homogeneous linear and substantially linear ethylene polymers having a relatively low density, ranging from about 0.855 [855] to about 0.885 [885], and a relatively low melt index, for example less than about 50 g/10 min.

The term "interpolymer" is used herein to indicate a copolymer, terpolymer, or higher order polymer having at least one other comonomer polymerized with ethylene. Interpolymers of ethylene are those polymers having at least one comonomer selected from the group consisting of vinyl esters of a saturated carboxylic acid wherein the acid moiety has up to 4 carbon atoms, unsaturated mono-or dicarboxylic acids of 3 to 5 carbon atoms, a salt of the unsaturated acid, esters of the unsaturated acid derived from an alcohol having 1 to 8 carbon atoms, and mixtures thereof. The melt index of the interpolymers of ethylene may range from about 50 g/10 min to about 2000 g/10 min, from about 100 g/10 min to 1500 g/10 min, from about 200 g/10 min to 1200 g/10 min, and from about 400 g/10 min to 1200 g/10 min.

**MARKED-UP VERSION OF THE AMENDED PARAGRAPHS OF THE
SPECIFICATION (CONTINUED)**

The following is a marked-up version of the amended paragraph at page 7, line 3-11.

Other thermoplastic polymers include polybutylene, polylactide, e.g., caprolactone polymers, and poly (hydroxy-butyrate/hydroxyvalerate), certain polyvinyl alcohols, biodegradable copolyesters such as Eastman Copolyester 14766 (Eastman Chemical), linear saturated polyesters, examples of which are available under the trade designations DYNAPOL and DYNACOLL from Huls, poly(ethylene oxide) polyether amide and polyester ether block copolymers, examples of which are available under the trade designations PEBAX from Atochem and RITE-FLEX from Hoechst Celanese, and polyamide polymers, examples of which are available under the trade designations UNIREZ (Union Camp), VESTAMELT (Huls) and GRILTEX (EMS-Chemie).

The following is a marked-up version of the amended paragraph at page 7, line 27- page 8, line 6.

Useful commercially available superabsorbent particles include, e.g., sodium polyacrylate superabsorbent particles available under the AQUA KEEP series of trade designations including, e.g., particles having [an average] a median particle size of from about 20 μm to about 30 μm available under the trade designation AQUA KEEP 10SH-NF, particles having an average particle size of from 200 μm to 300 μm available under the trade designation AQUA KEEP 10SH-P, particles having an average particle size of from 320 μm to 370 μm available under the trade designation AQUA KEEP SA60S, particles having an average particle size of from 350 μm to 390 μm available under the trade designations AQUA KEEP SA60SX, SA55SX II and SA 60SL II, and particles having an average particle size of from 250 μm to 350 μm available under the trade designation AQUA KEEP SA60N TYPE II from Sumitomo Seika Chemicals Col, Ltd. (Japan).

**MARKED-UP VERSION OF THE AMENDED PARAGRAPHS OF THE
SPECIFICATION (CONTINUED)**

The following is a marked-up version of the amended paragraph at page 8, lines 11-16.

Useful plasticizing oils include, e.g., hydrocarbon oils low in aromatic content, mineral oil (e.g., Purity 35 mineral oil from PetroCanada Lubricants (Calgary, Canada)). Preferred plasticizing oils are paraffinic or naphthenic. [Examples of suitable commercially available plasticizing oils are available under the trade designations Calsol 5555 from Calumet Refining Co. (Chicago, Illinois), and Benzoflex 352 from Velsicol, (Rosemont, Illinois).] One example of a suitable commercially available plasticizing oil is available under the trade designation Calsol 555 from Calumet Refining Co. (Chicago, Illinois). One example of a suitable commercially available solid recrystallizing plasticizer is available under the trade designation Benzoflex 352 form Velsico (Rosemont, Illinois).

The following is a marked-up version of the amended paragraph at page 9, lines 3-12.

Examples of suitable tackifying agents include wood rosin, tall oil rosin, tall oil derivatives, gum rosin, rosin ester resins, natural terpenes, synthetic terpenes, and petroleum based tackifying agents including, e.g., aliphatic, aromatic and mixed aliphatic-aromatic petroleum based tackifying resins. Useful hydrocarbon resins include, e.g., alpha-methyl styrene resins, branched and unbranched C₅ resins, C₉ resins and C₁₀ resins, styrenic and hydrogenated modifications thereof, and combinations thereof. [Examples of] One example of a useful commercially available tackifying resin [resins include HL-1620-A, HL-2238 and HL-1500 thermoplastic adhesives available form H.B. Fuller company (Vadnais Heights, Minnesota) and] is Zonatac 105 styrenated terpene resin from Arizona Chemicals Inc. (Panama City, Florida). Examples of useful commercially available tackified thermoplastic adhesives include HL-1620-A, HL-2238 and HL-1500 thermoplastic adhesives available form H.B. Fuller company (Vadnais Heights, Minnesota).

The following is a marked-up version of the amended paragraph at page 14, lines 14-15.

¹⁰AquaKeep 10SH-NF superabsorbent particles having a median diameter of 20 μm to 30 μm [um] (Sumitomo Seika, Osaka, Japan)

greater than 1 hour, no greater than 25 minutes, no greater than 10 minutes or no greater than 5 minutes.

In another embodiment, the composition exhibits an absorbent capacity of at least 60 g water/g of composition, at least 70 g water/g of composition, at least 90 g water/g of composition at least 100 g water/g of composition or at least 110 g water/g of composition.

In some embodiments, the composition exhibits an absorbent capacity of at least 25 g 0.9 % saline solution/g of composition, at least 30 g 0.9 % saline solution/g of composition or at least 35 g 0.9 % saline solution/g of composition.

10 In one embodiment, the thermoplastic composition includes block copolymer having the formula $(A-B)_x$ or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one, superabsorbent particles that includes polyacrylate and having a median [an average] particle diameter of from 20 μm to 30 μm and plasticizing oil, and the composition exhibits a water gel time of
15 no greater than 2 minutes. In some embodiments, the block copolymer is selected from the group consisting of styrene-isoprene-styrene, styrene-ethylene-butylene-styrene, styrene-ethylene-propylene-styrene, styrene-butadiene-styrene and combinations thereof

In another embodiment, the thermoplastic composition includes block copolymer having the formula $(A-B)_x$ or A-B-A where the A block comprises polyvinylarene, the B
20 block comprises poly(monoalkenyl), and x is an integer of at least one, superabsorbent particles that [includes] include polyacrylate and having a median particle diameter of from 20 μm to 30 μm and plasticizing oil, and the composition exhibits a 0.9 % saline solution gel time of no greater than 1 hour.

In other embodiments, the thermoplastic composition includes block copolymer
25 having the formula $(A-B)_x$ or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one, superabsorbent particles that include polyacrylate and having [an average] a median particle diameter of from 20 μm to 30 μm and plasticizing oil and the composition exhibits an absorbent capacity of at least 70 g water/g of composition.

30 In some embodiments, the thermoplastic composition includes block copolymer having the formula $(A-B)_x$ or A-B-A where the A block comprises polyvinylarene, the B block

MARKED-UP VERSION OF AMENDED/SUBSTITUTE PAGE 3

In some embodiments, the thermoplastic composition includes block copolymer having the formula (A-B) x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one, superabsorbent particles that includes polyacrylate and having [an average] a median particle diameter of
5 from 20 μm to 30 μm and plasticizing oil, and the composition exhibits an absorbent capacity of at least 25 g 0.9 % aqueous saline solution/g of composition.

In other embodiments, the thermoplastic adhesive composition that includes from about 1 % by weight to 25 % by weight block copolymer having the formula (A-B) x or A-B-A where the A block comprises polyvinylarene, the B block comprises
10 poly(monoalkenyl), and x is an integer of at least one, from about 45 % by weight to about 75 % by weight superabsorbent polymer particles that include [includes] polyacrylate and having a median [an average] particle diameter of from 20 μm to 30 μm , tackifying agent and from about 15 % by weight to about 40 % by weight plasticizing oil.

In another embodiment, the thermoplastic composition includes block copolymer
15 having the formula (A-B) x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one spherical superabsorbent particles that [includes] include polyacrylate and plasticizing oil, the composition exhibiting a water gel time of no greater than 2 minutes, a viscosity of no greater than 100,000 centipoise at 300°F and a wet tensile strength of at least 15 g/in². In
20 one embodiment, the composition exhibits a 0.9 % saline solution gel time of no greater than 1 hour. In some embodiments, the composition exhibits a 0.9 % saline solution gel time of no greater than 10 minutes. In other embodiments, the composition exhibits a water gel time of no greater than 1.5 minutes, a viscosity of no greater than 30,000 centipoise and a wet tensile strength of at least 40 g/in². In another embodiment, the
25 composition exhibits an absorption capacity of at least 70 g water/g composition.

In some embodiments, the thermoplastic composition includes from about 1 % by weight to 25 % by weight block copolymer having the formula (A-B) x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one, from about 45 % by weight to about 75 % by weight
30 superabsorbent polymer particles that include polyacrylate, and from about 15 % by weight to about 40 % by weight plasticizing oil, the composition exhibiting a water gel time of no greater than 2 minutes, and an absorption capacity of at least 70 g water/g composition and at least 10 g 0.9 % saline solution/g composition.

**MARKED-UP VERSION OF AMENDED/SUBSTITUTE PAGE 13 OF THE
SPECIFICATION**

Table 1

Example	1	2	3	4	5	6	7	8
Ingredients								
NW-1067 ¹	52	44.5						
HL-1620-A ²			45					
HL-2238 ³				45				
[PB] DP-8910 ⁴					15			
Zonatac 105 ⁵					15			
Calsol 5555 oil ⁶					15		27	22.5
HL-1500 ⁷						33		
Kraton G-1651 ⁸							1.5	1.5
Rhodacal DS-10 ⁹			2	2	2	2	1	1
AquaKeep 10SH-NF ¹⁰	48	55.5	53	53	53	65	70	75
Water Gel Time	>25 min	14.5 min	8.25 min	6 min	2.25 min	1.0 min	1.5 min	1.0 min
0.9% Saline Solution Gel Time	> 6 hrs	> 6 hrs	> 5 hrs	3.5 hrs	>20 min	9 min	5 min	10 min
Absorbent Capacity in water (g/g)	2.2	44	60	32	68	75	116	118
Absorbent Capacity in 0.9% Saline Solution (g/g)	2.7	5.2	24.5	9.9	24.7	21	35.5	37
Viscosity (cps) @ 300F	21,000	88,000	85,000	92,000	65,000	24,000	65,000	> 100,000
Wet Tensile Strength (g)	NT	NT	NT	NT	NT	49 g	Soft rubber nature	Soft rubber nature

NT = Not Tested

¹NW-1067 styrene-isoprene-styrene block copolymer-based adhesive composition (H.B. Fuller Company).

²HL-1620-A styrene-isoprene-styrene block copolymer-based adhesive composition including hydrocarbon resin and plasticizer (H.B. Fuller Company).

³HL-2238 styrene-ethylene-butylene-styrene block copolymer-based adhesive composition including hydrocarbon resin and plasticizer (H.B. Fuller Company).

⁴DP-8910 polybutylene [polyethylene] (Shell Chemical Company, Houston, Texas)

MARKED-UP VERSION OF THE AMENDED AND NEW CLAIMS

1.(Amended) A thermoplastic composition comprising:

from about 1 % by weight to 25 % by weight block copolymer having the formula (A-B)_x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one;

from about 45 % by weight to about 75 % by weight superabsorbent polymer particles comprising polyacrylate and having [an average] a median particle diameter of from 20 μm to 30 μm; and

from about 15 % by weight to about 40 % by weight plasticizing oil.

3.(Amended) The thermoplastic composition of claim 1 [21], further comprising from about 1% by weight to about 5 % by weight surfactant.

22.(Amended) A thermoplastic composition comprising:

block copolymer having the formula (A-B)_x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one;

superabsorbent particles comprising polyacrylate and having [an average] a median particle diameter of from 20 μm to 30 μm; and

plasticizing oil,

said composition exhibiting water gel time of no greater than 2 minutes.

24.(Amended) A thermoplastic composition comprising:

block copolymer having the formula (A-B)_x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one;

superabsorbent particles comprising polyacrylate and having [an average] a median particle diameter of from 20 μm to 30 μm; and

plasticizing oil,

said composition exhibiting a 0.9 % saline solution gel time of no greater than 1 hour.

25. (Amended) A thermoplastic composition comprising:

block copolymer having the formula (A-B)_x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one;

superabsorbent particles comprising polyacrylate and having [an average] a median particle diameter of from 20 μm to 30 μm; and

plasticizing oil,

said composition exhibiting an absorbent capacity of at least 70 g water/g of composition.

26. (Amended) A thermoplastic composition comprising:

block copolymer having the formula (A-B)_x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one;

superabsorbent particles comprising polyacrylate and having [an average] a median particle diameter of from 20 μm to 30 μm; and

plasticizing oil,

said composition exhibiting an absorbent capacity of at least 25 g 0.9 % aqueous saline solution/g of composition.

27. (Amended) A thermoplastic adhesive composition comprising:

from about 1 % by weight to 25 % by weight block copolymer having the formula (A-B)_x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one;

from about 45 % by weight to about 75 % by weight superabsorbent polymer particles comprising polyacrylate and having [an average] a median particle diameter of from 20 μm to 30 μm;

tackifying agent; and

from about 15% by weight to about 40% by weight plasticizing oil.

33. (Amended) A thermoplastic composition comprising:

block copolymer having the formula (A-B)_x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one;

spherical superabsorbent particles comprising polyacrylate; and
plasticizing oil,

said composition exhibiting a water gel time of no greater than 2 minutes, a viscosity of no greater than 100,000 centipoise at 300°F and a wet tensile strength of at least 15 g/in².

34.(Amended) The thermoplastic composition of claim 33 [34], wherein said composition exhibits a 0.9 % saline solution gel time of no greater than 1 hour.

35. (Amended) The thermoplastic composition of claim 33 [34], wherein said composition exhibits a 0.9 % saline solution gel time of no greater than 10 minutes.

36. (Amended) The thermoplastic composition of claim 33 [34], wherein said composition exhibits a water gel time of no greater than 1.5 minutes, a viscosity of no greater than 30,000 centipoise at 300°F and a wet tensile strength of at least 40 g/in².

37. (Amended) The thermoplastic composition of claim 33 [34], wherein said composition exhibits an absorption capacity of at least 70 g water/g composition.

38. (Amended) A thermoplastic composition comprising:

block copolymer having the formula (A-B)_x or A-B-A where the A block comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an integer of at least one;

from about 45 % by weight to about 75 % by weight superabsorbent polymer particles that include polyacrylate; and

from about 15 % by weight to about 40 % by weight plasticizing oil,
said composition exhibiting a water gel time of no greater than 2 minutes,
and an absorption capacity of at least 70 g water/g composition and at least 10 g
0.9% saline solution/g composition.

39. (New) A thermoplastic composition comprising:

block copolymer having the formula (A-B) x or A-B-A where the A block
comprises polyvinylarene, the B block comprises poly(monoalkenyl), and x is an
integer of at least one;

from about 45 % by weight to about 75 % by weight superabsorbent
polymer particles comprising polyacrylate; and

from about 15 % by weight to about 40 % by weight plasticizer,
said composition exhibiting a viscosity of no greater than about 65,000
centipoise at 300°F.

40. (New) A thermoplastic composition comprising:

thermoplastic polymer selected from the group consisting of amorphous
polyolefins, crystalline polyolefins, polylactides, polyvinyl alcohols, copolyesters,
polyesters, poly(ethylene oxide) polyether amides, polyester ether block
copolymers, polyamides, and combinations thereof;

from about 45 % by weight to about 75 % by weight superabsorbent
polymer particles comprising polyacrylate; and

from about 15 % by weight to about 40 % by weight plasticizer,
said composition exhibiting a viscosity of no greater than about 65,000
centipoise at 300°F.